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ABSTRACT

An attempt was made to see what effect implementation of ethical guidelines would have on cognitive and affective data collected in a classroom setting. A total of 126 graduate and 90 undergraduate male and female subjects were assigned randomly to six treatment groups. The six groups were provided different levels of information on a continuum from no information to full disclosure of the purpose and expectations of the research. Measures were taken on a cognitive task and an affective instrument. The data among all treatment groups yielded nonsignificant differences indicating no treatment effects. This is contrary to much of the published literature. The data indicate that implementation of ethical guidelines in a classroom setting may have no effect on the internal validity of similar research being conducted. (Author)

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The Effect of Using Different Levels of Research Purpose Information To Comply With Ethical Guidelines in Classroom Research

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Introduction

Much of the evidence available today indicates that a lack of internal validity in research can be attributed to various forms of data bias (Rosenthal, 1966; Rosenthal & Rosnow, 1969; Weber & Cook, 1972). This research suggests that variations in cues and information supplied directly and/or indirectly to the subjects participating in an experiment often may result in data bias. That is, the data results from studies are inflated or deflated (changed) by lack of control or lack of consistency of control of extraneous variables which result in data bias.

An area of data bias which has received little attention to date is that of how much information about the purpose of the research can be given by the experimenter to research subjects who serve as study particiapnts without distorting the resesrach results. Most of the published research before 1973 in the areas of education and psychology has not reported what the subjects were told concerning the purpose of the research in which they served as participants (Dolly & Tillman, 1974). The adoption of the American Psychological Association (APA) Ethical Principles in the Conduct of Research with Human Participants (1973) has, however, stimulated some interest and concern in this area. Three of the nine principles which are applicable to the research purpose information issue are:

> Principle 3: Ethical practice requires the investigator to inform the participant of all features of the research that reasonably might be expected to influence willingness to participate and to explain all other aspects of the research about which the participant inquires. Failure to make full disclosure gives added emphasis to the investigator's responsibility to protect the welfare and dignity of the research participant (p. 29).

> Principle 4: Openness and honesty are essential characteristics of the relationship between investigator and research participant. When the methodological requirements of a study necessitate concealment or deception, the investigator is required to ensure the participant's understanding of the reasons for this action and to restore the quality of the relationship with the investigator (p. 29).
>
> Principel 8: After the data are collected, ethical practice requires the investigator to provide the participant with a full clarification of the nature of the study and to remove any misconceptions that may have arisen. Where scientific or humane values justify delaying or withholding information, the investigator acquires a special responsibility to assure that there are no damaging consequences for the participant (p. 77).

Although the principles themselves indicate that researchers should inform their subjects of the purposes and content of the study in which the subjects are to participate, a careful review of the APA Ethical Principles and especially the extended discussions of the principles revealed that the amount of research purpose information provided to subjects should be based upon the investigator's judgment and that this judgment should be checked by consultation with others. However, the Ethical Principles do not discuss how the results of a study are affected by varying the amount of research purpose information provided to subjects.

Weber and Cook (1972) and Orne (1962), along with a host of other researchers, maintain that full disclosure of the research purpose will result in biased data and contend that positive research purpose information appears to elicit more positive task performance than negative information. Additionally, authorities in the area of data bias, Rosenthal and Rosnow (1969), have stated that, "While we emphatically insist that the use of deception does involve a moral cost, we equally insist that it might be necessary to pay this cost and

continue to use deception rather than to cease our research" (p. 50).

As a result of the adoption of the APA Ethical Principles, Resnick and Schwartz (1973) conducted a study to investigate the effects of research purpose information on task performance. In contrast to the findings obtained by Orne, Resnick and Schwartz, in their verbal-conditioning behavior modificaiton experiment, found that subjects receiving full disclosure (ethical group) of the research purpose felt that they had been deceived and responded negatively to the verbal-conditioning task when compared with the no disclosure (nonethical) group. However, the Resnick and Schwartz study was a laboratory experiment and utilized only two levels of research purpose information. The present research was primarily designed to examine the effects of six levels of written research purpose information on data gathered in a classroom setting. Student performance on a written affective and a written cognitive task was used to evaluate the results of the six levels of written information.

Method

Subjects

Two different samples were used in this study. One sample was composed of undergraduate junior level college students, and the other sample was composed of graudate students.

The undergraduate student sample consisted of college juniors enrolled in all Education 300 level courses in the College of Education at the University of South Carolina (U.S.C.) during the summer of 1975. There were 60 females (approximately 10 per group) and 30 males (approximately 5 per group) in the undergraduate sample. The average age of the undergraduate subjects was 20 years and 5 months.

The graduate student sample for the study consisted of 126 graduate students enrolled in Education 700, Methods and Materials of Research, courses in the College of Education at U.S.C. during the summer of 1975. Education 700 is a required course for all graduate students at the masters degree level in the College of Education. The students in this course were selected because they were felt to be representative of the graduate student population in the College of Education at U.S.C. There were 90 females (approximately 15 per treatment group) and 36 males (approximately 6 per treatment group) in the graduate sample. The average age of the graduate students was 29 years and 4 months.

All subjects were randomly assigned to one of the six levels of research purpose information groups.

Variables

The independent variable for the study was level of research purpose information. Six levels of research purpose information were used in this study. These six levels were: (1) No Information, (2) Usual or Traditional Information, (3) Partial/Positive Information, (4) Partial/Negative Information, (5) Complete/Positive Information, and (6) Complete/Negative Information. Three researchers ranked the six levels of research purpose information ranging from Complete/Negative to Complete/Positive as follows: (6) Complete/Negative to (4) Partial Negative to (1) No Information to (2) Usual or Traditional Information to (3) Partial/Positive to (5) Complete/Positive. As the research purpose information progresses along the continuum or range of levels, the information in each successive level becomes more positive and less negative.

The information contained in each level follows:

Level 1: No Information

Instructions: Students are requested to complete the attached Questionnaire. All information is anonymous.

Level 2: Usual or Traditional Information

Instructions: The faculty in the Educational Research Department is collecting data on student characteristics for a research project. Therefore, we would appreciate your completing the attached questionnaire. All information is anonymous.

Level 3: Partial/Positive Information

Instruc Prior studies have been conducted at several large universities to predict characteristics of educators. We as researchers are interested in continuing these investigations because these findings have been used for making decisions about students that appear to us to be beneficial. Therefore, we would appreciate your assisting us by completing the attached questionnaire. All information is anonymous.

Level 4: Partial/Negative Information

Instructions: Prior studies have been conducted at several large universities to predict characteristics of educators. We as researchers are interested in continuing these investigations because these findings have been used for making decisions about students that appear to us to be detrimental. Therefore, we would appreciate your assisting us by completing the attached questionnaire. All information is anonymous.

Level 5: Complete/Positive Information

Instructions: Prior studies conducted at several large universities have indicated that the attached questionnaire is useful in predicting successful and nonsuccessful educators. The hypothesis for this study is: Students who are logical tend to be more effective educators than students who are not logical. As researchers we find these results to be useful in making decisions about students. Therefore, we would appreciate your assisting us by completing the attached questionnaire. All information is anonymous.

Level 6: Complete/Negative Information

Instructions: Prior studies conducted at several large universities

> have indicated that the attached questionnaire is useful in predicting successful and nonsuccessful educators. The hypothesis for this study is: There is no relationship between scores on this test of logic and success as educators. As researchers we do not find these results to be accurate and believe that these findings are misused in making decisions about students. Therefore, we would appreciate your assisting us in disproving these prior studies by completing the attached questionnaire. All information is anonymous.

The dependent variables for assessing the effects of research purpose information on task performance were student scores on an affective task and student scores on a cognitive logical task.

The affective task used was an adapted version for college students of Scott's Academic Self-Concept Scale (1975). This instrument was designed to measure self-concept of academic ability or one's feelings about his academic capabilities. The Cronbach's alpha for the scale is r=.92. The results from this study on the 15-item multiple choice scale were factor analyzed (principal components and varimax rotation), all 15 items loaded on one factor and were retained for subsequent analyses. (See Appendix A for copy of self-concept scale.)

The cognitive logical task consisted of 39 items that were riddle, novel, or logical in nature and were written or adopted from various sources by the three researchers. The task was designed to measure cognitive logical ability of students. Although the researchers initially agreed that the cognitive logical task possessed logical content validity, an empirical validation of the instrument was necessary. The TSSA2 canned program which was originated at the University of Chicago in 1972 was used for the item analysis. Based upon item difficulty, item discrimination, and factor loading, twenty-five of the original 39 items were retained for subsequent statistical analyses of this study's

results for the cognitive logical task. The reliability of the cognitive logical task was established by the Kuder Richardson Formula 20 as being .812 for undergraduate students and .863 for graduate students. The results substantiated prior pilot study results of the cognitive logical task. The questions on the cognitive logical task were open-ended. A written set of instructions (or answers) was used for scoring, and each task was independently scored by two researchers. Therefore, the data was coded in a reverse fashion, and the score received indicates the mean number of errors made by six treatment groups. (See Appendix B for copy of the cognitive logical task.)

Additionally, a three-item questionnaire was written for the purpose of collecting demographic information on the students involved in the research study. The four items on the questionnaire were: age, sex, and educational status.

Procedure

The students in the classes for both samples were randomly assigned to the six treatments (levels of research purpose inforamtion). Each classroom instructor handed out the experimental packets and followed standardized timed administration format for the administration of each of the two tasks. Total time for experimental participation was approximately 30 minutes. Each student received an experimental packet which contained in order the following: (1) an instruction sheet which contained one of the six levels of research purpose information, (1) the affective task (academic self-concept scale,) (3) the cognitive logical task, and (4) the demographic information sheet. The experimental packets were also collected by the classroom instructors.

Statistical Design and Hypothesis

The design for analyzing the continuum data was that of a Single Factor, Fixed Model where

$$X_{ij} = \mu + \alpha_i + \varepsilon_{ij}.$$

The continuum data for this study meet the assumptions of the Single Factor, Fixed Model and consist of: (1) μ, an unknown constant for all treatments and for all subjects; (2) α_i (treatment effects), a systematic fixed constant for all subjects but may differ for the various levels of the treatment; and (3) ε_{ij}, a random variable that is independent of α_i and distributed as $N(0,\sigma_\varepsilon^2)$ within each treatment group.

The following statistical null hypotheses were established and tested:

Hypothesis 1: There will be no significant mean differences in undergraduate students' scores on an affective task among the six levels of research purpose information groups.

$$H_o: \mu_6 = \mu_4 = \mu_1 = \mu_2 = \mu_3 = \mu_5$$

Hypothesis 2: There will be no significant mean differences in graduate students' scores on an affective task among the six levels of research purpose information groups.

$$H_o: \mu_6 = \mu_4 = \mu_1 = \mu_2 = \mu_3 = \mu_5$$

Hypothesis 3: There will be no significant mean differences in undergraduate students' scores on a cognitive logical task among the six levels of research purpose information groups.

$$H_o: \mu_6 = \mu_4 = \mu_1 = \mu_2 = \mu_3 = \mu_5$$

Hypothesis 4: There will be no significant mean differences in

graduate students' scores on a cognitive logical task among the six levels of research purpose information groups.

$$H_o: \mu_6 = \mu_4 = \mu_1 = \mu_2 = \mu_3 = \mu_5$$

Results

The four study hypotheses were tested at the .05 level of confidence, and the following results were found:

Hypothesis 1:

The results from the Newman-Keuls studentized range procedure for Undergraduates on the Academic Self-Concept Scale across the six levels of research purpose information are presented in Table 1. These results indicated that there were no significant differences among any of the ordered pairs of mean comparisons.

Insert Table 1 about here.

As suggested by Games (1971) since no significant ordered pairwise differences were found in the results from the Newman-Keuls test, an overall analysis of variance test was run at the .05 level. The justification ofo following the Newman-Keuls procedure with an overall F is that we do not know the power of the Newman-Keuls test, and any solution for adequate n must be based on the F test. The Mean Square (MS) for Treatments (levels of research purpose information) with 5 df was 4.7311, and the MS Experimental Error with 84 df was 26.1508. The results from the F test indicated that there was no

significant difference among the treatment means (F =..1807, p > .9673). The analysis of variance information is presented in Table 2.

Insert Table 2 about here.

The means and standard deviations for the Undergraduate students on the Academic Self-Concept Scale are presented in Table 3.

Insert Table 3 about here.

Hypothesis 2:

Table 4 includes the results from the Newman-Keuls studentized range procedure for Graduates on the Academic Self-Concept Scale across the six levels of research purpose information. These results demonstrated that there were no significant differences among any of the ordered pairs of treatment means.

Insert Table 4 about here.

An overall F test revealed that the MS for Treatments (levels of research purpose information) with 5 df was 14.7571 and the MS Experimental Error with 120 df was 23.7095. The results from the F test indicated that there was no significant difference among the treatment means (F = .6224, p > .6856). The analysis of variance information is

presented in Table 5.

Insert Table 5 about here.

The means and standard deviations for the Graduate students on the Academic Self-Concept are presented in Table 6.

Insert Table 6 about here.

Hypothesis 3:

The results from the Newman-Keuls procedure for Undergraduates on the Cognitive Logical Task across the six levels of research purpose information are presented in Table 7. These results indicated that there were no significant differences among any of the ordered mean pairs.

Insert Table 7 about here.

An overall F test was run. The MS for Treatments with 5 df was 29.1200, and the MS Experimental Error with 84 df was 21.9857. The results from the F test indicated that there was no significant difference among the treatment means ($F = 1.3245$, $p > .2609$). The analysis of variance information is presented in Table 8.

Insert Table 8 about here.

The means and standard deviations for the Undergraduate students on the Cognitive Logical Task are presented in Table 9.

Insert Table 9 about here.

Hypothesis 4:

Table 10 presents the results from the Newman-Keuls procedure for Graduates on the Cognitive Logical Task across the six levels of research purpose information. These findings indicated that there were no significant differences among any of the ordered pairs of treatment means.

Insert Table 10 about here.

An overall F test indicated that the MS for Treatments with 5 df was 9.5746 and the MS Experimental Error with 120 df was 32.3286. The results from the F test indicated that there was no significant difference among treatment means ($F = .2962$, $p > .9137$). The analysis of variance information is presented in Table 11.

Insert Table 11 about here.

The means and standard deviations for the Graduate students on the Cognitive Logical Task are presented in Table 12.

Insert Table 12 about here.

Conclusions

Previous research studies (Orne, 1962; Resnick & Schwartz, 1973; Weber & Cook, 1972) seem to indicate that when research purpose information or hypothesis information is provided the data will be biased. Most of this research, however, has been carried out in what might be termed laboratory settings, where the experimenter worked with one subject at a time or with small groups of subjects. In this type of setting, there may be a stronger tendency for other types of research artifacts such as experimenter effects, evaluation apprehension, and demand characteristics influencing subject responses. However, the results from this study contradict these previous findings.

The results from this research indicated that the level of research purpose information provided to students had no significant effects on undergraduate or graduate students' performance on a written affective task. Additionally, the level of research purpose information had no significant effects on undergraduate or graduate students' performances on a written cognitive logical task. Based upon these results, the undergraduate and graduate students' performances on these two tasks appeared to be independent of the research purpose information provided to them. Therefore, apparently,

varying the amount of research purpose information provided to undergraduate and graduate stujects in a classroom setting does not tend to bias the data obtained.

These results seem to indicate that under similar conditions and using similar tasks full disclosure of the research purpose will not result in any significant change in data collected. The findings lend support to the implementation of ethical guidelines in classroom settings. The fact that the results of this study did not indicate any data bias in a classroom setting may be due to the lack of direct influence and individual contact between experimenters and subjects in the study. If subjects had been tested individually or in small groups, as other researchers have done (Oren, Rosenthal, Weber & Cook, Resnick & Schwartz), the results may have been different.

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Table 1

Newman-Keuls Analysis for Undergraduates on Academic Self-Concept Scale

Ordered Pairs of Treatment Means

T_1	T_6	T_2	T_3	T_4	T_5	T_1
	18.6000	19.2000	19.4000	19.4667	19.8000	20.2667
T_6	———	.6000	.8000	.8667	1.2000	1.6667
T_2		———	.2000	.2667	.6000	1.0667
T_3			———	.0667	.4000	.8667
T_4				———	.3333	.8000
T_5					———	.4667
T_1						———
Truncated range r		2	3	4	5	6
$q_{.95}(r,34)$		2.8150	3.3800	3.7150	3.9500	4.1300
$q_{.95}(r,84)\sqrt{MS_E/n}$		3.7169	4.6295	4.9053	5.2156	5.4533

$MS_E = 26.15079365$

$n = 15$

6 2 3 4 5 1 MS

Table 2

Mean Scores for Undergraduates on Academic Self-Concept Scale

Treatment	Mean	SD
1	20.266667	6.419464
2	19.200000	5.073742
3	19.400000	4.747932
4	19.466667	3.758166
5	19.800000	4.126569
6	18.600000	6.021390

n = 15

Table 3

Analysis of Variance for Undergraduates

on Academic Self-Concept Scale

Source	df	SS	MS	F	p>F
Treatments	5	23.65555556	4.73111111	.18092	.9673
Experimental Error	84	2220.32222222	26.15079365		

Table 4

Newman-Keuls Analysis for Graduates on Academic Self-Concept Scale

Ordered Pairs of Treatment Means

T_i	T_3	T_2	T_1	T_5	T_6	T_4
	17.0952	17.3810	17.4762	18.1905	18.9524	19.0476
T_3	___	.2858	.3810	1.0953	1.8572	1.9524
T_2		___	.0952	.8095	1.5714	1.6667
T_1			___	.7143	1.4762	1.5714
T_5				___	.7619	.8571
T_6					___	.0952
T_4						___
Truncated range r		2	3	4	5	6
$q_{.95}(r,120)$		2.8000	3.3600	3.6900	3.9200	4.1000
$q_{.95}(r,120)\sqrt{MS_E/n}$		2.9744	3.5693	3.9199	4.1642	4.3554

$MS_E = 23.70952381$

$n = 21$

3 2 1 5 6 4 NS

Table 5

Analysis of Variance for Graduates

on Academic Self-Concept Scale

Source	df	SS	MS	F	p>F
Treatments	5	73.78571429	14.75714286	.62241	.6856
Experimental Error	120	2845.14285714	23.70952381		

Table 6

Mean Scores for Graduates on Academic Self-Concept Scale

Treatment	Mean	SD
1	17.476190	4.178744
2	17.380952	4.375799
3	17.095238	5.233591
4	19.047619	5.152438
5	18.190476	5.134485
6	18.952381	5.034642

n = 21

Table 7

Newman-Keuls Analysis for Undergraduates

on Cognitive Logical Task

Ordered Pairs of Treatment Means

T_i	T_1	T_4	T_3	T_6	T_5	T_2
	17.1333	16.9333	16.8000	15.2000	15.1333	13.6000
T_1	———	.2000	.3333	1.9333	2.0000	3.5333
T_4		———	.1333	1.7333	1.8000	3.3333
T_3			———	1.6000	1.6667	3.2000
T_6				———	.0667	1.6000
T_5					———	1.5333
T_2						———

Truncated range r	2	3	4	5	6
$q_{.95}(r,84)$	2.8150	3.3800	3.7150	3.9500	4.1300
$q_{.95}(r,84)\sqrt{MS_E/n}$	3.4081	4.0922	4.4978	4.7823	5.0002

MS_E = 21.98571429

n = 15

1 4 3 6 5 2 NS

NOTE: The above means indicate the mean number of incorrect responses made by each treatment group.

Table 8

Analysis of Variance for Undergraduates

on Cognitive Logical Task

Source	df	SS	MS	F	p>F
Treatments	5	145.60000000	29.12000000	1.3245	.2609
Experimental Error	84	1846.80000000	21.98571429		

NOTE: The above means indicate the mean number of incorrect responses made by each treatment group.

Table 9

Mean Scores for Undergraduates on

Cognitive Logical Task

Treatment	Mean	SD
1	17.133333	3.943651
2	13.60000	4.910630
3	16.80000	4.678217
4	16.93333	5.687915
5	15.13333	4.373078
6	15.20000	4.345770

n = 15

NOTE: The above means indicate the mean number of incorrect responses made by each treatment group.

Table 10

Newman-Keuls Analysis for Graduates on

Cognitive Logical Task

T_i	T_5	T_6	T_1	T_4	T_2	T_3
	16.8571	15.8571	15.6667	15.4762	15.4286	14.8095
T_5	___	1.0000	1.1904	1.3809	1.4285	2.0476
T_6		___	.1904	.3809	.4285	1.0476
T_1			___	.1905	.2381	.8572
T_4				___	.0476	.6667
T_2					___	.6191
T_3						___

Truncated range r	2	3	4	5	6
$q_{.95}(r,120)$	2.8000	3.3600	3.6[illegible]	3.9200	4.1000
$q_{.95}(r,120)\sqrt{MS_E/n}$	3.4740	4.1688	4.5782	4.8635	5.0869

MS_E = 32.32857143

n = 21

4 6 5 1 2 3 NS

NOTE: The above means indicate the mean number of incorrect responses made by each treatment group.

Table 11

Analysis of Variance for Graduates

on Cognitive Logical Task

Source	df	SS	MS	F	p>F
Treatments	5	47.87301587	9.57460317	.29617	.9137
Experimental Error	120	3879.42857143	32.32857143		

NOTE: The above means indicate the mean number of incorrect responses made by each treatment group.

Table 12

Mean Scores for Graduates on

Cognitive Logical Task

Treatment	Mean	SD
1	15.666667	4.374167
2	15.428571	5.626468
3	14.809524	6.500916
4	15.476190	7.040022
5	16.857143	4.693460
6	15.857143	5.415586

n = 21

NOTE: The above means indicate the mean number of incorrect responses made by each treatment group.

APPENDIX A

Scott's Academic Self-Concept Scale

Directions: The statements below are about your course work in general. Please indicate on your answer sheet the number in front of each statement that seems to be the most like your opinion. Note that because this is simply a questionnaire, there are no "better" or "best" statements. It is only your opinion that is important.

1. When I compare this class with other classes, I think that it is probably
   (0) a very smart class
   (1) one of the smartest classes.
   (2) smart
   (3) average.
   (4) dumb.

2. Compared to the other students in my courses, I am probably
   (0) the smartest
   (1) one of the smartest
   (2) smart
   (3) average
   (4) dumb

3. I think that I have the ability to do course work that is
   (0) excellent
   (1) good
   (2) fair
   (3) poor

4. When a course is boring, I usually
   (0) make myself listen carefully anyway
   (1) listen for something important
   (2) think about other things
   (3) rest my mind

5. The grades that I get in my courses generally show me
   (0) how smart I am
   (1) how hard I studied
   (2) how much I don't know
   (3) how hard I need to study
   (4) not much of anything

6. My professors usually think that I am
   (0) the smartest person in the class
   (1) one of the smartest in the class
   (2) smart
   (3) average
   (4) dumb

7. I believe that my course work is
   (0) generally worth thinking about
   (1) usually worth thinking about
   (2) sometimes worth thinking about
   (3) rarely worth thinking about
   (4) not important enough to think about

8. My family expects my school work to be
   (0) mostly A's
   (1) A's and B's
   (2) mostly C's
   (3) my family doesn't have any set expectations

9. The grades that I get in college are
   (0) very important
   (1) important
   (2) sort of important
   (3) not worth worrying about

10. I usually try to get grades that are
    (0) mostly A's
    (1) A's and B's
    (2) mostly C's
    (3) I dont' try to get any particular grades.

11. In my course work, it is important to me to
    (0) really know the material well, no matter how long it takes me
    (1) spend enough time to know the material fairly well
    (2) know the material enough to get through as quickly as I can
    (3) get my work finished as quickly as I can

12. Because of the way that I act in class, most of the other students think that I am
    (0) the smartest person in the class
    (1) one of the smartset in the class
    (2) smart
    (3) average
    (4) dumb

13. I would grade my course work in general as
    (0) outstanding
    (1) good
    (2) below average
    (3) failing

14. When I think about college life in general
    (0) my course work is the most important thing
    (1) my course work is important along with other things
    (2) my course work is not as important as some other things
    (3) my course work doesn't matter at all.

15. If I don't do as well in my courses as I think I should, I usually feel
    (0) terrible
    (1) bad
    (2) sort of bad
    (3) not bad at all

APPENDIX B

Cognitive Logical Task

Directions: All the following questions are logical and have logical answers.

1. What is the voting age for federal elections in the United States of America?
2. Where is Argentina?
3. What is opposite of south?
4. Why do we celebrate the 4th of July?
5. Name a play written by Shakespeare.
6. Who was Confuscious?
7. Who wrote Tom Sawyer?
8. What is the square of a number?
9. I went to bed at 8 o'clock in the evening and set the alarm to get up at 9 in the morning. How many hours of sleep would this allow me?
10. Divide 30 by ½. Add ten. What is the answer?
11. How many animals of each species did Moses take aboard the ark?
12. How many birthdays does the average man have?
13. Do they have a 4th of July in England?
14. Take two apples from three apples, and what do you have?
15. What is the total of the nine numbers between 1 and 10?
16. How far can a horse walk with a 50-foot rope tied around his neck?
17. Two mothers were walking down a sidewalk. Each had their daughter with her. While walking they met an old friend who gave them three oranges. How did they divid the three oranges between them without so much as cutting an orange?
18. In the space provided on your answer sheet, print a lower case (small letter) i with a dot over it.
19. If you throw the dice and "7" is showing on top, what is facing down?
20. How much is three plus three plus three times three times zero?

21. Some months have thirty days, some have thirty-one. How many months have twenty-eight days?

22. If a doctor gave you three pills and told you to take one every half-hour, how long would they last?

23. How far can a dog run into the woods?

24. What are four words that appear on every denomination of U.S. coins?

25. I have in my hand two U.S. coins which total 55 cents in value. One is not a nickel. Please keep that in mind. What are the coins?

26. A man builds a house with four sides to it. It is rectangular in shape. Each side has a southern exposure. A big bear came wandering by. What color is the bear?

27. A woman gives a beggar 50 cents. The woman is the beggar's sister. The beggar is not the woman's brother. How come?

28. What is the maximum number of active baseball players on the field during any part of the game?

29. Two men play checkers. They played 5 games, and each man won the same number of games. How can you figure this?

30. Is it legal in South Carolina for a man to marry his widow's sister?

31. If you had only one match and entered a room in which there were a kerosene lamp, an oil burner, and a wood burning stove, which would you light first?

32. Why can't a man living in Winston-Salem, N.C. be buried west of the Mississippi River?

33. A farmer had 17 sheep. All but 9 died. How many did he have left?

34. An archaeologist claimed that he found some gold coins dated 46 B.C. Do you think that he did?

35. Where is New Caladonia?

36. How many inches are there in a meter?

37. Define <u>anthropology</u>.

38. Define <u>autarchy</u>.

39. Define <u>suttee</u>.